

REMARKS

Claims 1-5, 7-13, 15, 17-24 and 26-30 were examined. No claims are amended. Claims 1-5, 7-13, 15, 17-24 and 26-30 remain in the Application.

The Patent Office rejects claims 1-5, 8-13, 15, 18-22, 24, 26-28 and 30 under 35 U.S.C. §103(a) as obvious over U.S. Patent No. 5,764,483 of Ohashi (Ohashi) in view of U.S. Patent No. 6,191,546 of Bausch (Bausch). Ohashi is cited for disclosing a cooling unit and method for cooling electronic equipment including a first heat transfer plate, a second heat transfer plate, a closed loop tube that joins the first and second heat transfer plates, a heat transfer medium, a pump, a disconnection, a plate-fin type liquid heat transfer plate, and extensively dissipating heat at high capacities from a heat radiating plate. The Patent Office notes that Ohashi fails to disclose sensing a temperature of an electronic device and causing a liquid to move when a threshold temperature is detected. Bausch is cited for disclosing a temperature sensor that activates a cooling device to operate when a threshold temperature is detected. The Patent Office finds a motivation to combine Ohashi and Bausch in that the combination will improve the cooling performance and provide an optimal condition for cooling electronic devices within notebook computers. Bausch provides:

One aspect of the invention is to allow for more accurate control of individual temperatures of heat producing components such as integrated circuits, batteries, and electronic devices, in particular, microprocessors, than conventional techniques provide to increase reliability and prevent catastrophic failures. Another aspect of the invention is to allow for the interchange of various electronic modules, such as processor modules and graphic controller modules, having different thermal characteristics, such as thermal lag reaction time, to support the postponement manufacturing processes used in today's manufacturing of electronic devices. A further aspect of the invention is to allow for the support of different thermal measurement devices such as on-die diodes incorporated with digital temperature sensors. One aspect of the invention is to address thermal management of multiple heat sources in an electronic device. Several aspects of the invention are directed to reducing acoustical noise. Yet another aspect of the invention is to support multiple types of cooling devices through the use of adaptive filtering. In addition, an aspect of the invention is to support multiple modes of

operation such as stand-alone mobile use and integration of the notebook into a company's enterprise network with the use of a docking station for the notebook.

Col. 3, lines 5-27. The noted aspects are achieved through the use of control circuitry connected to a temperature sensor that senses a component temperature and varies a cooling rate in a manner that reduces a lag time that may occur from a steady state condition of the component temperature. See Abstract. The cooling rate of the cooling device is varied by the control circuitry in proportion to a variation in sensed component temperature from the temperature sensor. See Abstract. Bausch describes cooling devices of fans and blowers, heat pipes, compressed gas cartridges, and circuitry which adjusts the frequency of the system clock. According to Bausch, each of these cooling devices exhibits a differing lag time in response to a change in the rate of the cooling rate of the cooling device. See col. 4, lines 40-44.

Claims 1-5, 8-13, 15, 18-22, 24, 26-28 and 30 are not obvious over the cited references, because there is no motivation to combine the cited references. Ohashi is cooling a device through the use of a pumped liquid. Bausch is concerned with cooling multiple structures with devices such as fans and blowers that have lag times in response to a change in the rate of the cooling rate of the cooling device. It does not appear that a continuously pumped liquid, which is presumably described in Ohashi, would have such a lag time requiring a temperature sensor or control circuitry to adjust for a lag time as described in Bausch. In fact, the cooling performance of a continuously pump liquid would provide the optimal condition for cooling electronic devices within notebook computers. While it may not be desirable to continuously pump a liquid from an energy efficiency standpoint, certainly in terms of cooling, continuous pumping would be optimal. Applicants respectfully request that the Patent Office withdraw the rejection to claims 1-5, 8-13, 15, 18-22, 24, 26-28 and 30 under 35 U.S.C. §103(a).

Applicants appreciate the acknowledgment that claims 7, 17, 23 and 29 are allowable over the prior art. Given Applicants' arguments above, amendments of claims 7, 17, 23 and 29 to overcome the objection at this point are not warranted. Applicants respectfully request that the Patent Office withdraw the objection to claims 7, 17, 23 and 29 in view of the arguments made above.

CONCLUSION

In view of the foregoing, it is believed that all claims now pending patentably define the subject invention over the prior art of record and are in condition for allowance and such action is earnestly solicited at the earliest possible date.

Respectfully submitted,

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I hereby certify that this correspondence is being deposited with the United States Postal Service on the date shown below with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

Nedy Calderon 5/13/05
Nedy Calderon Date